

Patent Claims

- 5 1. A method for actuating at least one wheel brake
device of a vehicle for preventing inadvertent rolling
when a vehicle is stationary, characterized in that a
driving off assistance mode with a predefined brake
pressure profile is activated in the at least one wheel
10 brake device if
- the stationary state of the vehicle has been
detected and the vehicle is located on an incline, when
viewed in the longitudinal direction of the vehicle,
and an uphill direction was detected as the designated
15 driving off direction of the vehicle, or
 - the vehicle begins to roll starting from the
detected stationary state, in the opposite direction to
the designated driving off direction.
- 20 2. The method as claimed in claim 1, characterized in
that the maintaining brake pressure (p_H) which is
predefined at the time when the driving off assistance
mode which is predefined by the brake pedal position is
switched on is maintained for a predefined delay period
25 (Δt) after the complete release of the brake pedal for
as long as a driving off request of the driver has not
been detected.
- 30 3. The method as claimed in claim 2, characterized in
that the driving off request is determined by means of
the engine torque (M) and/or the engine speed (N)
and/or variables derived therefrom.
- 35 4. The method as claimed in claim 2 or 3,
characterized in that the driving off request of the
driver is detected by virtue of the fact that the
derivative (\dot{M}) of the engine torque (M) over time is
greater than or equal to a predefinable threshold value

(\dot{M}_0) for the change in the engine torque and at the same the derivative (\dot{N}) of the engine speed (N) over time is less than or equal to a predefinable negative threshold value ($-\dot{N}_0$) for the change in the engine speed.

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5. The method as claimed in claim 4, characterized in that the values of the engine torque (M) and/or of the engine speed (N) are prefiltered before the derivation over time, in particular by means of the polynomial
10 moving average method.

6. The method as claimed in one of claims 1 to 5, characterized in that when the start of rolling of the vehicle in the opposite direction to the designated
15 driving off direction is detected a crawling brake pressure (p_K) is automatically set.

7. The method as claimed in one of claims 2 to 5, characterized in that, after the expiry of the delay
20 period (Δt), the maintaining brake pressure (p_H) is automatically reduced to a crawling brake pressure (p_K).

8. The method as claimed in claim 7, characterized in
25 that the crawling brake pressure (p_K) is set lower than the maintaining brake pressure (p_H) by an amount equal to a predefinable pressure difference (Δp).

9. The method as claimed in claim 6 or 7,
30 characterized in that the crawling brake pressure (p_K) is set in such a way that the vehicle rolls downhill with a predefinable crawling speed (v_K).

10. The method as claimed in one of claims 1 to 9,
35 characterized in that the designated driving off direction is determined by reference to the gearspeed selected by the driver.

11. A device for carrying out the method as claimed in one of claims 1 to 10, having a control device (23) for controlling the brake pressure (p) in at least one wheel brake device (16, 17, 35, 36) of a vehicle, and
5 having means for determining the vehicle speed (43), characterized in that

- means (30) are provided for determining the incline of the road in the longitudinal direction of the vehicle, and
- 10 - means are provided for determining the designated driving off direction of the vehicle, wherein a driving off assistance mode with a predefined brake pressure reduction is activated in the at least one wheel brake device (16, 17, 35, 36) by means of the
15 control device (23) if
 - the stationary state of the vehicle has been detected and
 - the vehicle is located on an incline, when viewed in the longitudinal direction of the vehicle, and
 - 20 - an uphill direction was detected as the designated driving off direction of the vehicle.

12. The device as claimed in claim 11, characterized in that means for determining the gearspeed selected by
25 the driver are present in order to determine the designated driving off direction.